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USAGE OF WIFI TECHNOLOGY FOR PLC PROGRAMMING

VYUŽITÍ WIFI TECHNOLOGIE PRO PROGRAMOVÁNÍ PLC

Abstract

This contribution describes usage of WIFI technology for programming and parameterization of application in PLC. INSYS WLAN unit from the Microelectronics INSYS Corporation is the base of application. Software access point with using USB WIFI component WL167 is running in industrial PC. Particular PC clients are connecting into network infrastructure PLC by the help of this access point and INSYS WLAN unit. This connection allows configuring and uploading program into this PLC.

Abstrakt

Tento příspěvek popisuje využití WIFI technologie pro programování a parametrizaci aplikací v PLC. Základem je jednotka INSYS WLAN firmy INSYS Microelectronics. Na průmyslovém PC je spuštěn softwarový přístupový bod s využitím USB WIFI komponenty WL167. S pomocí tohoto AP a jednotky INSYS WLAN jsou jednotliví PC klienti propojeni se síťovou infrastrukturou PLC a mohou konfigurovat nebo programovat jednotlivá PLC.

1 SPECIFICATION OF REQUIREMENTS FOR PLC INTERCONNECTION

Every PC in laboratories of department 352 is connected in infrastructure of university network. It was necessary to connect this PLC (ABB Company) in to network after expansion of laboratories. This network (with PLC) must be separated from network infrastructure. The network segment with PLC is connected using INSYS WLAN unit.

2 CREATING OF ACCESS POINT

Software access point has been configured for creating of separate network for PLC. This access point has been created from industrial PC of Moravské přístroje a.s Company and USB unit WL167 from ASUS. This Company delivers software support together with this unit for their configuration in AP mode in OS Windows XP.

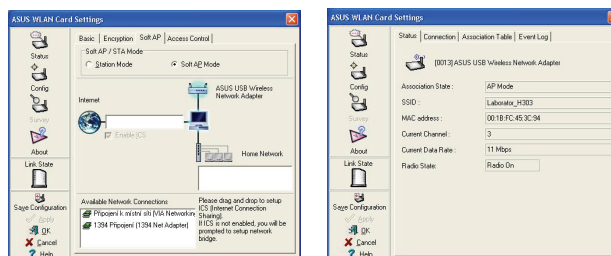


Fig. 1 Configuration windows of the access point

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OPC server. This possibility was verified in the application, which enables configuration of two PID controllers in PLC device, which control the position of helicopter model. The application enables configuration of controller and monitoring of position of helicopter model. The application is created in Control Web 5 environment. Next figure show a configuration window for this application. These controllers are implemented in PLC device, which enable also actual position scanning of helicopter model in two axes using IRC sensors. Configuration data are transferred through the OPC communication (Wireless connection) for particular controllers to PLC and from PLC are transferred position values to SCADA/MMI system.

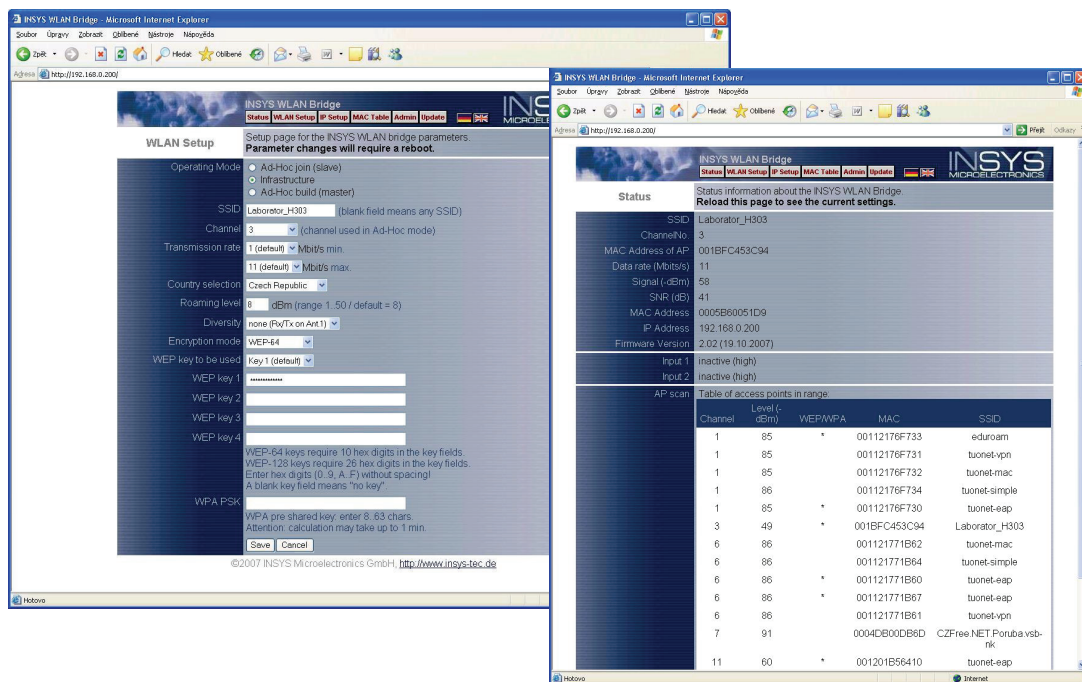


Fig. 3 Configuration windows for INSYS WLAN unit

5 METHOD OF CONFIGURATION

Every PLC is connected through the switch device. INSYS WLAN serves for PLC and software AP connection on the IPC side. First step is IP address settings of PLC in the AC500 Control Builder environment and upload this configuration from PC client to PLC. Next, after the restart we can reach straight the PLC and we can execute upload of own configuration for PLC device. Data transmission is carrying out the wireless network.

6 CONFIGURATION OF PC KLIENTS.

The PC clients are configured in similar way as standard WIFI clients, which are connected to infrastructure using access point. DHCP server doesn't be use for TCP/IP configuration, because delivered software for AP mode doesn't support this method. We can use the possibility of windows XP system for network connection settings especially shared internet connection. This variation enables the local network creation with possibility of IP address assigning.

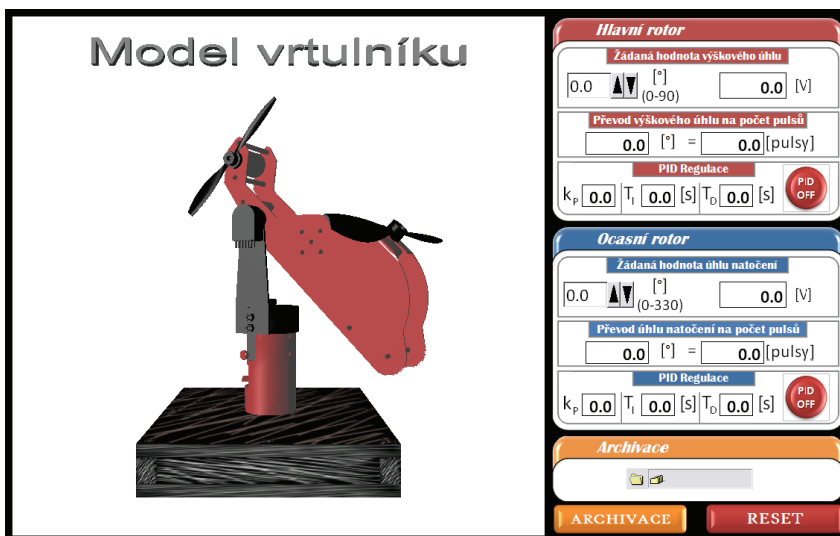


Fig. 3 Windows of application for configuration and position monitoring of helicopter model

7 CONCLUSIONS

This paper describes creating of local WIFI network with PLC in laboratory H303. The software access point running on the industrial PC and other PC clients and PLC devices are components of designed network. This network makes the possible the programming and configuration of PLC devices through the wireless transmission from PC client console. These PC clients have connectivity to the designed network along with the access to the university network. This technology is used in education process of “Logical elements and systems” subject. Students of department are learned the programming of PLC in this subject. OPC communication with PLC is also verified in this wireless network. This network support application for helicopter model monitoring and configuration through the wireless transmission. This papers is supported GAČR 101/07/1345.

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